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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,571	08/26/2003	Mengtao Pete He	15730.0800	4102

7590 03/28/2005  
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EXAMINER

WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 03/28/2005


Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/648,571

Applicant(s)

HE ET AL. 

Examiner

Teresa J. Walberg

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1-23-05</u> . | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

1. The new formal drawings referred to in the response have not been received.

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the present drawings contain hand written numerals in some Figures. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. Corrected drawings are required in reply to this Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-6, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundberg et al (6,141,496) in view of Kelly (6,254,011).

Sundberg et al disclose (see Figs. 4 and 5) a controllable heating apparatus for use in a vapor dispensing device including a heating element (76), a voltage source (Fig. 5) coupled to the heating element (76), a variable resistor (75) coupled to the heating element (76) and the voltage source, the variable resistor (75) including a fixed resistive element and a moveable element (57), the

heating element (76) having a dissipated power that is related to the position of the moveable element.

While Sundberg does not state that the dissipated power of the heating element is at least partially linearly related to a temperature of the heating element, the temperature increase of a resistive heater is necessarily produced by dissipation of power and thus is necessarily and inherently at least partially linearly related to the temperature of the heating element

Sundberg et al do not disclose that the variable resistor is non-linear.

Kelly teaches using a non-linear variable resistor to compensate for non-linearities in a heating system. See abstract.

It would have been obvious in view of Kelly to make the variable resistor of Sundberg et al non-linear to enable compensating for non-linearities in the heating system of Sundberg.

4. Claims 2, 3, 7, 8, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundberg et al (6,141,496) in view of Kelly (6,254,011) as applied to claims 1, 4-6, and 19 above and further in view of Fujii et al (3,564,475).

Sundberg et al in view of Kelly, as discussed above, disclose the claimed structure with the exception of the heater and the resistors being thin film resistors, and the resistor varying due to differences in width or thickness.

Fujii et al disclose that it is conventional in the art to make resistive elements as thin films.

It would have been obvious in view of Fujii et al to make the heating resistor and the control resistor of Sundberg et al in view of Kelly as thin films, the motivation being ease of manufacture.

Fujii et al further disclose that it is known in the art to vary the width and thickness of a variable resistor to obtain a non-linear function.

It would have been obvious in view of Fujii et al to make the non-linear resistor of Sundberg et al in view of Kelly by varying its width or thickness, the motivation being to more easily control the resistor characteristics.

5. Applicant's arguments filed 24 January 2005 have been fully considered but they are not persuasive.

The applicant argues that Kelly is non-analogous art because it includes a vehicle operator cab and fluid flow. However, Kelly was not cited for showing a vehicle operator cab or the details of the heating system, but rather for using a potentiometer as a non-linear variable resistor to compensate for non-linearities in a heating system and to control an electrical actuator. Potentiometers and control systems are considered to be analogous art to other potentiometers and control systems without regard to the specific details of the environments in which they are used.

The applicant argues that the prior art does not teach the heating element having a dissipated power at least partially linearly related to a temperature of the heating element. However, the temperature increase of a resistive heater is

necessarily and inherently produced by dissipation of power. The amount of temperature increase in the resistive heater is a measure of the amount of power being dissipated by the resistance of the heater. Thus the dissipated power of a resistive heating element is necessarily and inherently at least partially linearly related to the temperature of the heating element

6. The rejection of claims 9, 10, and 11-17 under 103(a) is withdrawn in view of the amendment to the claims to require a vapor delivery system and since upon further consideration it would not have been obvious to combine the teachings of Ginn to use first and second resistors or to use the specific relationships claimed, because while it would have been obvious to one of ordinary skill in the art to provide compensation for non-linearities in the heater and control system, it would not have been obvious to use the specifically claimed relationships for the correction factors absent a teaching that the irregularities in vaporization rates follow such correction factors.

7. Claims 13-17 are allowed.

8. Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Teresa J. Walberg  
Primary Examiner  
Art Unit 3753

tjw